Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method of altering a communications signal to reduce an average-to-minimum power ratio thereof, the communications signal being formed using pulse-shaping techniques applied to instances of a pulse of a given form, the method comprising, for at least one signal component:

setting a desired signal envelope minimum;

mapping a digital stream of bits onto a symbol constellation to generate a sequence of symbols;

generating signal sample points from the sequence of symbols;

identifying two or more signal sample points between which ~~a time instant in the vicinity of which the~~a communications signal is likely to reach a local envelope minimum~~fall below the desired signal minimum~~;

using a mathematical model of the communications signal ~~in a time interval said time instant~~, determining a minimum of the communications signal envelope between the signal sample points and a time at which the minimum between the signal sample points occurs~~during said time interval~~;

determining a measure of at least one of magnitude and phase of the communications signal corresponding to the minimum of the communications signal ~~during said time interval~~; and

if said minimum of the communications signal is less than ~~a~~the desired signal minimum:

in accordance with said one of magnitude and phase, forming a scaled corrective pulse; and

adding to the signal component the scaled corrective pulse, in timed relation to the signal, to form a modified communications signal having a reduced average-to-minimum power ratio.

2. (Original) The method of Claim 1, comprising repeating said identifying, determining, forming and adding steps to form from the modified communications signal a further modified communications signal.

3. (Currently Amended) The method of Claim 1, wherein ~~comprising~~ determining a measure includes determining ~~of~~ both the magnitude and phase of the communications signal between the signal sample points ~~at said approximate time instant~~.

4. (Currently Amended) The method of Claim 3, further comprising:

~~calculating values of the communication signal at a small number of points near said approximate time instant~~; and

fitting a mathematical function to the communications signal using the signal sample points~~values~~.

5. (Original) The method of Claim 4, wherein the communications signal is represented within a signal plane having an origin denoting a signal of zero magnitude, and determining a measure of magnitude comprises determining within the signal plane a point of intersection between said function and an intersecting line that bears a predetermined relationship to the function and that includes the origin.

6. (Currently Amended) The method of Claim 5, wherein the number of signal sample points~~small number of points~~ is two, and the mathematical function is a spanning line that ~~spans a distance between~~ includes the two signal sample points.[[.]]

7. (Currently Amended) The method of Claim 6, further comprising determining a value representing a straight-line distance between said signal sample points.

8. (Original) The method of Claim 7, wherein the value representing the straight-line distance value is computed using a function.

9. (Original) The method of Claim 7, wherein the value 1 is used to represent the straight-line distance value.

10. (Currently Amended) The method of Claim 7, wherein ~~the~~ a measure of the phase of the communications signal ~~at the approximate time instant~~ is represented by a trigonometric function of the phase.

11. (Original) The method of Claim 10, wherein the trigonometric function is computed using said straight-line distance value.

12. (Original) The method of Claim 11, wherein the trigonometric function is approximated by:

performing multiple comparison operations; and

based on results of the comparison operations, selecting one of multiple pre-stored values.

13. (Currently Amended) The method of Claim 12, <u>further</u> comprising deriving from said <u>signal sample</u> points a line segment lying within a first quadrant of the signal plane, wherein the comparison operations compare a slope of the line segment with multiple predetermined slopes.

14. (Currently Amended) The method of Claim 12, <u>further</u> comprising deriving from said <u>signal sample</u> points a line segment lying within a first quadrant of the signal plane, wherein the comparison operations comprise applying successive rotations to the line segment and, after each rotation, applying a binary criterion to a location of the line segment in the complex plane.

15. (Currently Amended) A method of altering a communications signal to reduce a<u>n</u> average-to-minimum power ratio thereof, the communications signal being

represented in polar form having a magnitude component and a phase-related component, the method comprising, for at least one signal component:

filtering a communications signal using a nonlinear filter in a polar domain;

setting a desired signal envelope minimum;

identifying a time instant at which the signal envelope falls below the desired signal envelope minimum; and

adding to the signal component a corrective pulse, in timed relation to the signal, to form~~ed~~ a modified communications signal having a reduced average-to-minimum power ratio.

16. (Currently Amended) The method of Claim 15, wherein phase is the phase-related component, and further comprising, during a time interval in which the phase of the communications signal changes from a first value to a second value, interpolating between actual phase values and a line extending between the first value and the second value.

17. (Currently Amended) The method of Claim 15, wherein the signal component is phase-related, and further comprising:

adding to the signal component two corrective pulses that together have a negligible effect on the signal component outside a limited period of time.

18. (Original) A method of altering a communications signal to reduce an average-to-minimum power ratio thereof, comprising:

performing conditioning of the communications signal in a first domain to form a modified communications signal; and

performing conditioning of the modified communications signal in a second domain to form a further modified communications signal;

wherein the first domain is one of a quadrature domain and a polar domain, and the second domain is a different one of the quadrature domain and the polar domain.

19. (Original) The method of Claim 6, wherein the intersecting line is orthogonal to the spanning line.

20. (Currently Amended) The method of Claim 6, wherein the ~~communications signal is formed in accordance with a signal constellation in which at least two~~ signal sample points are located at ~~different~~various distances from the origin in ~~the~~a complex plane, and wherein identifying, in real-time, two signal sample points between which the communications ~~a time instant in the vicinity of which the~~ signal is likely to fall below the desired signal minimum comprises:

dividing a straight-line distance along a transition line between the two ~~constellation~~ signal sample points into two ratioed portions based on a point of intersection of the transition line with a normal passing through the origin.

21. (New) The method of Claim 6 wherein generating signal sample points is performed using a digital filter.

22. (New) A method of reducing the average-to-minimum magnitude ratio (AMR) of a communications signal having a sequence of symbols, comprising:

specifying a time interval between which a low magnitude event of the communications signal is likely to occur, said time interval not dependent on a transition between a given symbol and a successive symbol in said sequence of symbols;

calculating a minimum magnitude of the communications signal within the specified time interval; and

if the calculated minimum magnitude of the communications signal is less than a desired minimum magnitude, adding a correction pulse to the communication signal to form a modified communications signal.

23. (New) The method of Claim 22 wherein the correction pulse is added to the communications signal at times other than $t = kT + T/2$, where T denotes the symbol period and k is an integer.

24. (New) An apparatus, comprising:

a baseband modulator operable to generate a baseband signal defined by:

$$s(t) = \sum_n a_n p(t - nT),$$

where a_n is a symbol corresponding to the n^{th} component of a digital message, $p(t)$ is a pulse at time t, and T is the symbol period;

an analyzer operable to determine one or more perturbation instances t_m and one or more perturbation values b_m, at least one of said one or more perturbation instances t_m occurring at an instance other than $t = kT + T/2$, where k is an integer;

a pulse-shaping filter operable to generate a perturbation sequence from the one or more perturbation instances t_m and the one or more perturbation values b_m; and

a summer operable to form a perturbed baseband signal defined by:

$$\hat{s}(t) = \sum_n a_n p(t - nT) + \sum_m b_m p(t - t_m).$$

25. (New) The apparatus of Claim 23 wherein said one or more perturbation instances t_m define points in time when the magnitude of $s(t)$ falls below a predetermined minimum threshold.

26. (New) A method of conditioning a communications signal, comprising:

assigning mathematical coordinates to two signal samples of a communications signal, said two signal samples being in the temporal vicinity of a low-magnitude event of the communications signal;

calculating a minimum magnitude of the communications signal using the mathematical coordinates;

if the calculated minimum magnitude is less than a predetermined threshold, forming a correction pulse; and

combining the correction pulse coherently with the communications signal in the temporal vicinity of the low-magnitude event.